

What is claimed is:

1. An iontophoresis system for non-invasively taking a physiological substance out of a living body, comprising a plurality of electrode structures and a power supply device  
5 connected to the electrode structures, wherein at least one of the electrode structures has a physiological substance extraction pad applied to a mucous membrane, and a time to apply electric energy to the living body by the power supply device is set between 30 seconds and 20 minutes.
- 10 2. The iontophoresis system according to claim 1, wherein the electrode structure having the physiological substance extraction pad comprises an ion exchange resin or an ion exchange membrane.
- 15 3. The iontophoresis system according to claim 1, wherein the electrode structure having the physiological substance extraction pad comprises a device quantifying the physiological substance or a device qualitatively measuring the physiological substance.
- 20 4. The iontophoresis system according to claim 1, wherein the physiological substance is a drug administered for treatment.
- 25 5. The iontophoresis system comprising two electrode structures, fixing members fixing the electrode structures, a spring member provided between the fixing members arranged to rotatably cross each other, and a power supply device connected to the electrode structures, wherein at least one of the electrode structures has a physiological substance extraction pad applied to a mucous membrane.

6. The iontophoresis system according to claim 5, wherein one of the electrode structures is provided for the mucous membrane of the mouth and the other is provided for the skin.

7. A method of analyzing a physiological substance for using  
5 iontophoresis to non-invasively take a physiological substance out of a living body for analysis, comprising applying a physiological substance extraction pad to a mucous membrane, applying electric energy to the living body via the pad for 30 seconds to 20 minutes by the iontophoresis,  
10 and quantifying or qualitatively measuring a physiological substance extracted in the pad.

8. The method of analyzing a physiological substance according to claim 7, wherein the physiological substance extraction pad is used to extract glucose.

15 9. The method of analyzing a physiological substance according to claim 7, wherein the physiological substance extraction pad is applied to a mucous membrane of a mouth.